

WILDLIFE MANAGEMENT UNIT 22 - BEAVER

Boundary Description

Iron, Garfield, Piute, Beaver, and Millard counties - Boundary begins at SR-130 and I-15; north on SR-130 to SR-21; north on SR-21 to SR-257; north on SR-257 to the Black Rock road; east on the Black Rock road to I-15; south on I-15 to I-70; east on I-70 to US-89; south on US-89 to SR-20; west on SR-20 to I-15; south on I-15 to SR-130.

Management Unit Description

The Beaver wildlife management unit includes both slopes of the Tushar Mountains south of I-70. It also contains the Mineral Mountains south of the Black Rock road, a portion of Parowan Valley, and Fremont Wash. Total usable mule deer range in the wildlife management unit is estimated at 1,154,744 acres. Sixty percent of the range is considered winter range and 40% is considered summer range. Total usable elk range is estimated at 507,698 acres with 55% of this being classified as summer range and 45% being winter range.

On the west side of the wildlife unit, the Black Mountains and the Mineral Mountains are typical of the arid mountains of western Utah. Neither support streams with permanent flows. They lack good summer range, but are vegetatively similar to most deer wintering areas of southern Utah. Both the Black and Mineral Mountains have relatively steep, rugged slopes and areas of rocky outcrops. Black Mountain is unlike the Mineral Mountains in that the top is dominated by gently rolling sagebrush hills and dry meadows.

The Tushar Mountains are more typical of the high elevation mountains of central and southern Utah and contain good summer range for deer and elk. The Tushar's have many small lakes and perennial streams. The western slopes of the Tushar Mountains are more gradual and receive sufficient precipitation to create good intermediate deer range which is used in the spring and fall and during mild winters. Delano Peak on the Tushar Mountains is the unit's highest point at an elevation of 12,173 feet. The low point in the unit is about 5,000 feet in the valley near Milford. The highest point in the Mineral Mountains is 9,578 feet on Granite Peak and Jack Henry Knoll at 8,668 feet is the highest area in the Black Mountains. Towns in this area include Beaver, Milford, and Minersville.

The east side of the Tushar Mountains is comprised of drainages which empty into the Sevier River. The major tributaries are Deer Creek, Beaver Creek, Bullion Creek, Cottonwood Creek, Ten Mile Creek, City Creek, Birch Creek, Pine Creek and Chokecherry Creek. Between Circleville and Marysvale, a broad river valley with gradual slopes joins the steep mountain slopes and sheer cliffs of the Tushar mountains. The portions north of Marysvale and south of Circleville (including Marysvale and Circleville Canyons) are composed of disjunct pinyon-juniper canyons. Towns in this area include Sevier, Marysvale, Junction, and Circleville.

Most of the big game winter range in this unit is located on Forest Service or BLM managed lands. Minor portions of the winter range in the unit occur on private holdings, Utah State School Trust Lands, and Division of Wildlife Resources management areas. In 1996, a fire burned on the north end of the management unit burning large tracts of winter range.

On the west side of the Tushar Mountains, most of the use on the winter range is on the Black and Mineral Mountains. The winter ranges on these mountains were used quite extensively in the past by deer migrating from summer range on the Tushars. These migrations were essentially eliminated by the construction and fencing of I-15. Two underpasses and one overpass were constructed to aid deer in crossing I-15, however, these have had limited success. Meanwhile, the winter range on the east side of I-15 must carry the burden. Still, there is ample range for deer in normal winters. Only in severe winters when the usable range is limited

to the lowest areas near the freeway does winterkill become a significant problem.

On the east side of the Tushar Mountains, the normal winter range boundaries range from 6,200 feet on the valley floor to 8,500 feet in the upper basins. Oak Basin often winters deer up to the 8,600 foot level. The upper limit along the steeper portions of the east face of Tushar Mountains is 7,200 feet. Severe winter range occupies 47,223 acres, 71% of the normal winter range (Huff and Bowns 1965). The upper limit of severe winter range is normally 7,000 feet, but goes as high as 8,000 feet in Oak Basin. Winter deer concentrations are found on south and southeast facing slopes. Minor migrations from the summer ranges of units 23 - Monroe and 24 - Dutton onto unit 22 winter ranges occur each year, but the major movement is an elevational movement from summer to winter range within the unit.

Wildlife Unit Management Objectives

Current management objectives for big game are to achieve a target population of 11,000 wintering deer with a post season buck to doe ratio of 15:100. Thirty percent of these bucks are to be 3-point or better. The target winter herd size for elk is to be 950 with a post season composition of 8 bulls to 100 cows. At least four of these bulls must be 2½ years of age or older. Harvest and population classification data for deer and elk are available in the Division's annual big game reports.

Trend Study Description

Fourteen range trend studies were initially established in the Beaver unit in 1985. These studies were reread in 1991 and 1998. Additional range trend studies were established in 1998 at South Creek, 22-15 and in 1999 at 22R-4, Above Fremont Wash, due to additional monitoring needs on critical deer winter ranges. In 1997, two additional transects were established on top of the Tushar Mountains to monitor the effect that mountain goats were having on the Tushar paintbrush, a sensitive species endemic to the area. All of the studies were resampled in 2003.

SUMMARY

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Most of the range trend studies in the Beaver unit sample winter ranges. Two studies, Oak Basin (22-3) and Doubleup Hollow (22-10), sample transitional ranges that would receive big game use during mild winters. Two studies on top of the Tushar Mountains sample summer range for mountain goats (22R-1 and 22R-2). These studies are not typical range trend studies as the sampling methodology was created specifically to determine the effect of mountain goat use on the Tushar paintbrush, a sensitive species endemic to the area.

Only 2 trends were considered improving in the entire unit in 2003 which were the soil trend at Antelope Mountain (22-14) and the herbaceous trend at Minersville Reservoir (22-13). Both of these studies sample burned sites, and improving trends are the result of rehabilitation efforts. Other than the 2 studies discussed above, soil, browse, and herbaceous understory trends were split nearly evenly between stable and downward classifications throughout the rest of the unit in 2003.

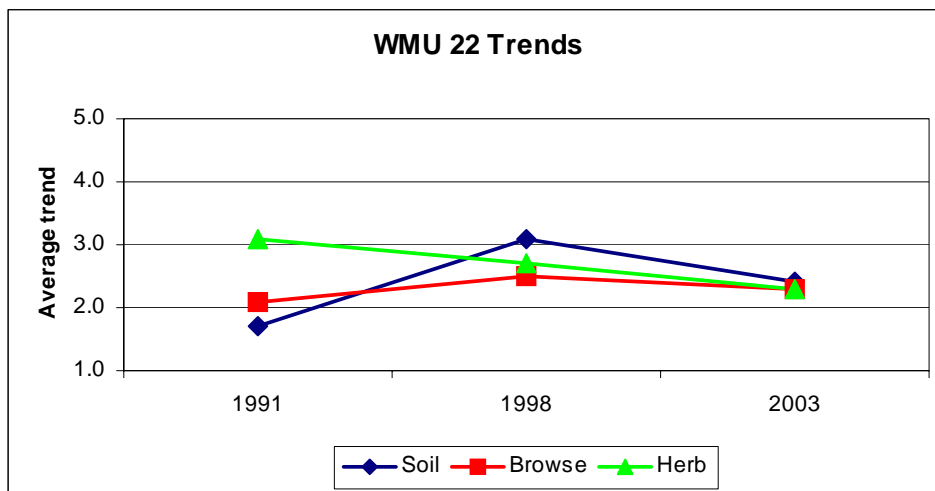
Stable soil trends are the result of basic ground cover parameters (% cover of vegetation, litter, and bare ground) being fairly constant, or the ratio of these categories to each other fluctuating very little since 1998. Downward soil trends can occur if 1 or more of these parameters show large changes since the previous survey, or if current erosion is evident. Big sagebrush, primarily the Wyoming and mountain subspecies, represents the key browse on most of the studies in the Beaver unit. Downward browse trends resulted due to 1 or more key factors including, but not limited to, population declines, increased decadence, reduced vigor, and lower reproduction. Of the 14 sites in the unit where big sagebrush is the key species, 10 sites had increased decadence and 12 sites had decreased recruitment from young plants in 2003. Wildfire also resulted in a downward trend at Minersville Reservoir (22-13) as the Wyoming big sagebrush population was lost following a burn in 1998. Downward herbaceous trends resulted from decreased nested frequency and cover values for perennial grasses and forbs in 2003. Decreases in perennial grass sum of nested frequency and cover occurred on 11 and 13 sites respectively in 2003. Perennial forbs had a lower sum of nested frequency value on 10 sites, while average cover decreased on 12 sites in 2003. Cheatgrass was sampled on 14 of the 16 sites in the unit in 1998 and 2003. Cheatgrass frequency declined on 11 of the 14 sites where it was sampled, while cheatgrass cover decreased on the 9 of the 14 sites.

Soil and vegetation trends are largely driven by precipitation. Utah has been in a drought for the past 5 years, and some of the areas within the Beaver unit reflect this. Weather station data at 4 locations was analyzed to look at precipitation trends for the Beaver unit since range trend studies were established in 1985. These stations occur at Milford, Minersville, Circleville, and Marysville (Utah Climate Summaries 2004). Unfortunately, all of these weather station locations occur on the fringes of the unit. Precipitation data in the interior of the unit along the I-15 corridor was unavailable due to incomplete data sets. Precipitation data was averaged over the 4 weather stations listed above, and data indicate that from 1985-2002, total annual precipitation was normal or above normal in all years except 1999 and 2001-2002 (see precipitation graphs below). Perhaps more important than total annual precipitation is seasonal distribution of precipitation. Data were analyzed for the different seasons of the year including spring, and fall totals. Spring precipitation (April - June) is important for cool season perennial grasses and forbs, as well as shrub populations, as these species initiate growth during the spring. Weather data indicate that spring precipitation in the Beaver unit was very dry from 2001-2003 at 73%, 23%, and 65% of normal respectively (see precipitation graphs below). Dry springs also occurred in 1989 and 1996 with most other years being normal or above normal. Recent fall precipitation totals have oscillated back and forth with dry years in 1999 and 2001, and wetter than normal years in 2000 and 2002. Dry falls also occurred in 1988-89 and 1995. For this report, the period from 2000-2003 is the focus as it would most effect current range trends. Below normal spring precipitation from 2001-03 is the primary reason for the decline in perennial grasses and forbs as well as there being less cheatgrass on many of the studies sites in 2003. Even with lower cheatgrass frequency and cover values in 2003, cheatgrass

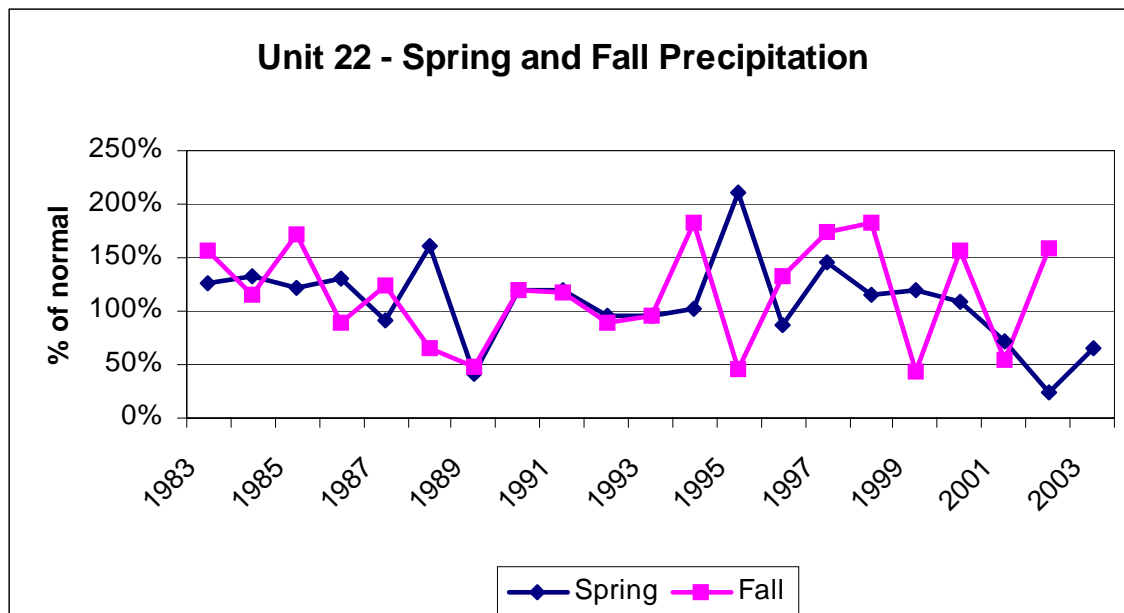
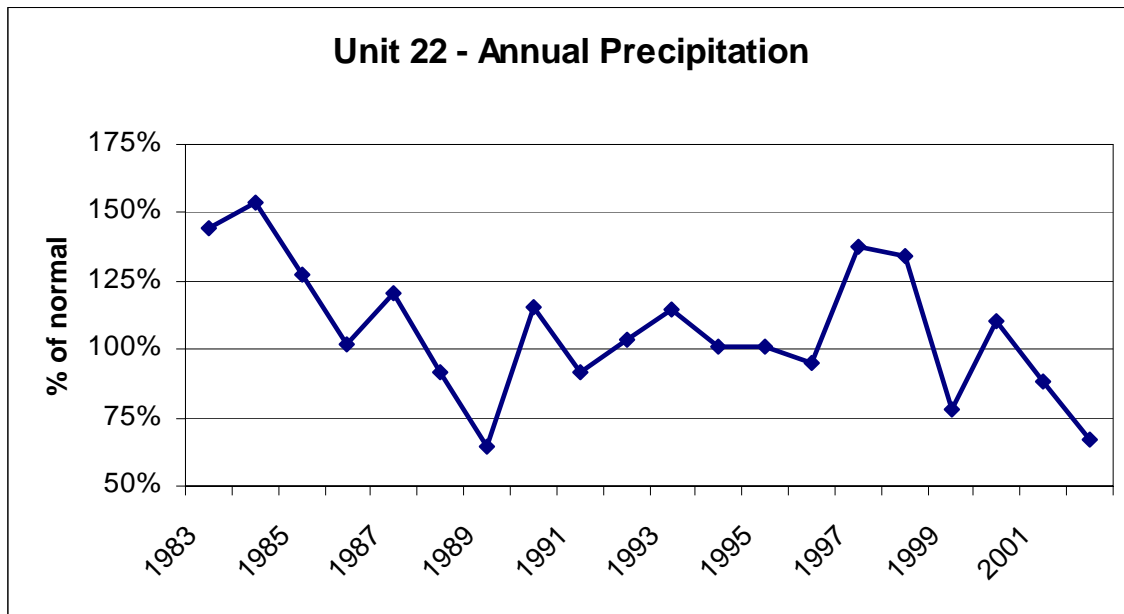
is highly competitive and still persists on the majority of the key areas. A return to normal precipitation patterns should help perennial species increase, but will also likely mean increased cheatgrass throughout the unit. Increased decadence and lower reproduction in the sagebrush populations are also linked to the dry conditions during the past several years. It is likely that these negative trends will continue until precipitation patterns improve.

Average Trends – WMU 22 Beaver

	1991	1998	2003
Soil	1.7	3.1	2.4
Browse	2.1	2.5	2.4
Herb	3.1	2.7	2.3
	14 sites	14 sites	16 sites



Precipitation graphs for the Beaver unit. Data is percent of normal precipitation averaged for 4 weather stations at Milford, Minersville, Circleville, and Marysville (Utah Climate Summaries 2004).



Trend Summary

	Category	1985	1991	1998	2003
22-1 Deer Flat	soil	est	2	3	3
	browse	est	4	3	2
	herbaceous understory	est	4	2	2
22-2 Piute Reservoir	soil	est	1	3	2
	browse	est	2	3	3
	herbaceous understory	est	2	4	3
22-3 Oak Basin	soil	est	1	4	1
	browse	est	1	5	3
	herbaceous understory	est	2	2	1
22-4 Wades Canyon	soil	est	2	4	3
	browse	est	2	1	3
	herbaceous understory	est	2	3	1
22-5 Bone Hollow	soil	est	2	3	3
	browse	est	2	2	1
	herbaceous understory	est	3	3	3
22-6 Beaver Table	soil	est	2	4	1
	browse	est	2	2	3
	herbaceous understory	est	3	2	2
22-7 Sheep Rock	soil	est	1	5	1
	browse	est	3	3	3
	herbaceous understory	est	5	5	1
22-8 Muley Point	soil	est	3	3	3
	browse	est	1	1	3
	herbaceous understory	est	1	2	2

(1) = down, (2), slightly down, (3) = stable, (4) = slightly up, (5) = up
 (est) = established, (n/a) = no trend, (susp) = suspended, (NR) = not read

	Category	1985	1991	1998	2003
22-9 Rocks Reseeding	soil	est	1	3	2
	browse	est	3	4	2
	herbaceous understory	est	1	3	3
22-10 Doubleup Hollow	soil	est	2	3	3
	browse	est	1	3	3
	herbaceous understory	est	2	3	1
22-11 “B” Hill	soil	est	1	4	3
	browse	est	2	3	2
	herbaceous understory	est	4	1	3
22-12 Big Cedar Cove	soil	est	2	2	3
	browse	est	2	3	2
	herbaceous understory	est	5	3	3
22-13 Minersville Reservoir	soil	est	1	1	1
	browse	est	3	1	1
	herbaceous understory	est	4	2	4
22-14 Antelope Mountain	soil	est	3	2	5
	browse	est	1	1	n/a
	herbaceous understory	est	5	3	3
	Category			1998	2003
22-15 South Creek	soil			est	2
	browse			est	2
	herbaceous understory			est	2
	Category			1999	2003
22R-4 Above Fremont Wash	soil			est	3
	browse			est	3
	herbaceous understory			est	3

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